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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/846,707	04/30/2001	Witold Kula	SJ09-2000-0121US11BM1P002	4927

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SILICON VALLEY INTELLECTUAL PROPERTY GROUP
P.O. BOX 721120
SAN JOSE, CA 95172-1120

EXAMINER

MILLER, BRIAN E

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 12/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/846,707

Applicant(s)

KULA ET AL.

Examiner

Brian E. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

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Claims 1-21 are pending.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1-16, 18-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Mao et al (US 6,490,140). Mao et al discloses a GMR spin valve sensor for use in a magnetic disk drive device (col 1, lines 21-22), as shown primarily in FIG. 5, including: a pinned layer 126 having a pinned layer magnetization; a free layer 130 disposed adjacent the pinned layer, the free layer having a free layer magnetization perpendicular to the pinned layer magnetization in the absence of an external field; a spacer layer 128 disposed between the free layer and the pinned layer; a pinning layer 124 disposed adjacent the pinned layer for fixing the pinned layer magnetization; an underlayer 138 disposed adjacent the pinning layer, the underlayer comprising NiFeCr; an upper layer 142 disposed adjacent the underlayer and the pinning layer, the upper layer comprising a material selected from the group consisting of NiFe and CoFe (e.g. NiFe) for increasing a GMR ratio associated with the SV sensor; (re claims 2-4 & 13-15) wherein the upper layer has a thickness of between 4-20 Angstroms (see col. 10, lines 2-5) and is considered to be “doped”; (re claim 7) the underlayer includes a Cr atomic % of 40 +/- 5 (col. 8, lines 1-3); (re claims 8, 9) the pinned layer comprises a Ru layer 144 and CoFe layers 146, 142 disposed on

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either side thereof; (re claim 10) the free layer comprises a NiFe layer 150 and CoFe layers 152, 148 disposed on either side thereof.

The method of fabricating a spin valve sensor as recited in claims 12-16 is considered to be encompassed by the above discussion. With respect to claim 21 and the recitation of an actuator which moves the SV sensor, it is inherent to the recitation of a magnetic disk drive in Mao et al (col, 1, lines 20-21) that an actuator would be present along with the respective controller, for proper operation of the disk drive.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mao et al. For a description of Mao et al, see the rejection, supra. Mao et al only remains silent as to the upper layer 142 being formed of CoFe, in place of NiFe. As CoFe and NiFe are commonly known ferromagnetic materials, it would have been obvious to one having ordinary skill in the art at the

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time the invention was made to have readily substituted CoFe for NiFe, or vice versa, for the upper layer material. The motivation would have been: lacking any unobvious or unexpected results, a skilled artisan would have readily realized that the two materials are equivalent and therefore substitutable for each other. Furthermore, it has been held that selecting a known material on the basis of its suitability for the intended use is a matter of obvious design choice; see *In re Leshin*, 125 USPQ 416 (CCPA 1960).

Response to Amendment

6. Applicant's arguments filed 4/7/03 have been fully considered but they are not persuasive.

A...Applicant asserts that the newly added limitation, i.e., "wherein the upper layer has a thickness less than 20A," avoids the prior art range cited by the Examiner in Mao et al (col. 8, line 6).

The Examiner notes that the citation spanning col. 8, lines 5-8, actually is directed to a thickness of the lower layer, i.e., the "underlayer" of the two layer seedlayer, not the "upper layer" as is the basis of the argument. After further review of Mao et al, the embodiment of FIG. 5 which was relied upon by the Examiner, includes an underlayer 138 and an upper layer 142, wherein the thickness of the upper layer "is preferably in the range of about 5A to about 30A, and more preferably approximately 10A," (col. 10, lines 2-5) which range fully encompasses the claimed thickness of the upper layer being "less than 20A."

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Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4750.

A handwritten signature in black ink, appearing to read "B. Miller", written over a horizontal line.

Brian E. Miller
Primary Examiner
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bem
December 15, 2003